Commodity Futures Trading Strategies: Trend-Following and Calendar Spreads

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This digest article discusses the most common strategies employed by futures traders, namely: trend-following and calendar-spread trading.

Commodity Trading Advisors (CTAs) and Trend-Following

Although two basic types of CTAs – discretionary and trend-following – exist, the investment category is dominated by trend-followers. As Campbell and Company (2013), note, "[M]ore than 70% of managed futures funds [are estimated to] rely on trend-following strategies." Trend-followers are also known as *systematic traders*. The operative word here is systematic. Automated programs screen the markets using various technical factors to determine the beginning or end of a trend across different timeframes. As Lungarella (2002) writes, "[t]he trading is based on the systematic application of quantitative models that use moving averages, break-outs of price ranges, or other technical rules to generate the 'buy' and 'sell' signals for a set of markets."

In this investment process, automation is key and discretionary overrides of the investment process tend to be taboo. Discretionary traders occupy the other end of this bifurcated CTA spectrum. For discretionary traders, Lugarella (2002) explains that "[p]ersonal experience and judgment are the basis of trading decisions. They tend to trade more concentrated portfolios and use fundamental data to assess the markets, and also technical analysis to improve the timing."

Description of Trend-Following

The basic idea underlying trend-following strategies is that all markets trend at one time or another. As put forward by Rulle (2003), "A trend-following program may trade as many as 80 different markets globally on a 24-hour basis. Trend-followers try to capture long-term trends, typically between 1 and 6 months in duration when they occur."

Trend-followers will scan the markets with quantitative screens designed to detect a trend. Once the model signals a trend, a trade will be implemented. A successful trend-follower will curb losses on losing trades and let the winners ride. That is, false trends are quickly exited and real trends are levered into. In a sense this is the distinguishing feature amongst trend-following CTAs. The good managers will quickly cut losses and increase their exposure to winning trades. In a sense, alpha may come from this dynamic leverage. As Fung and Hsieh (2003) explain, "…trend-following alpha will reflect the skill in leveraging the right bets and deleveraging the bad ones as well as using superior entry/exit strategies.

Negative alphas will be accorded to those managers that failed to lever the right bets and showed no ability in avoiding losing bets irrespective of the level of overall portfolio return – luck should not be rewarded."

Proprietary Futures Traders and Calendar-Spread Trading

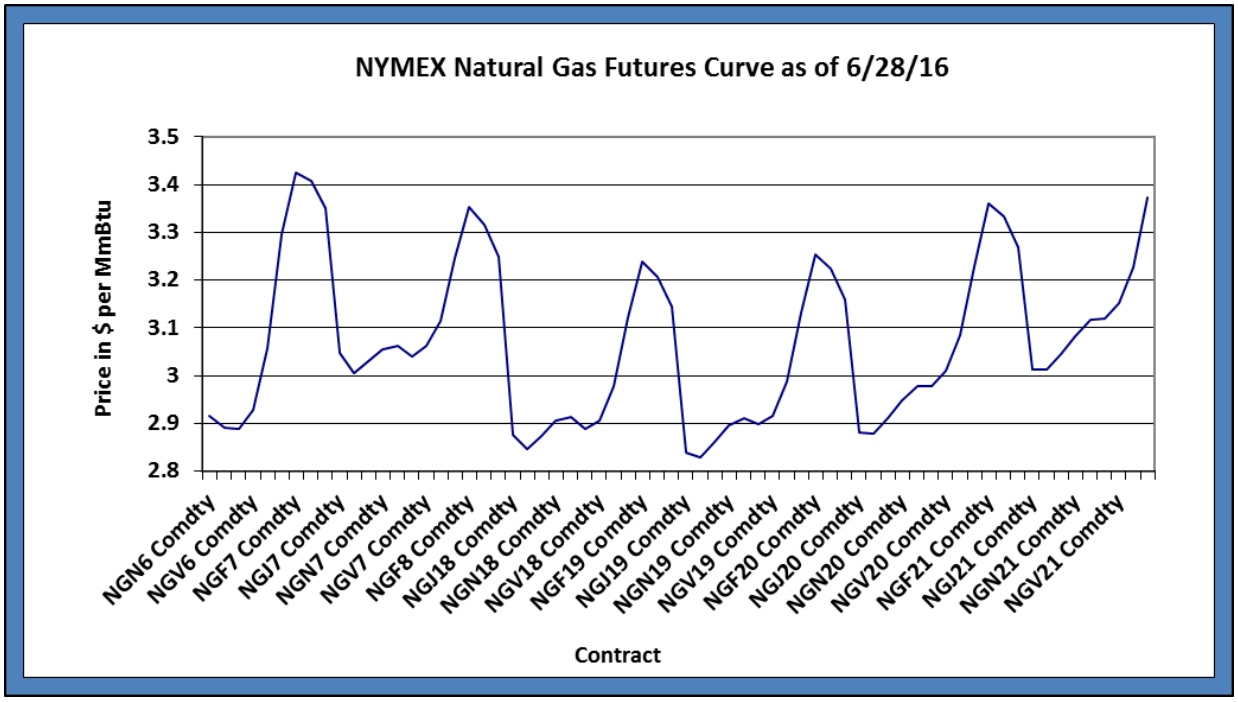
In contrast to highly scalable CTA programs, proprietary futures traders often specialize in understanding the factors that impact the spread between two (or more) of a commodity futures contract's delivery months. This strategy is known as *calendar-spread trading*. By way of further explanation, in all commodity futures markets, a different price typically exists for each commodity, depending on when the commodity is to be delivered. For example, with natural gas, a futures contract whose delivery is in October will have a different price than a contract whose delivery is in December. Accordingly, a futures trader may trade the spread between the October vs. December futures contracts.

Calendar spread opportunities arise when a seemingly predictable one-sided commercial or institutional interest exists in particular futures contract(s): a proprietary trader will thereby take the other side of this "flow." Examples of one-sided flow have occurred during seasonal inventory build-and-draw cycles and during the scheduled times when futures contracts are rolled in commodity indices, as discussed in the next section.

Trading Strategies Keyed to Seasonal Inventory Build-and-Draw Cycles

Figure 1 on the next page shows the futures curve for natural gas on June 28, 2016. The term structure of a commodity futures market is classified as a curve because each delivery-month contract is plotted on the x-axis with their respective prices on the y-axis: thus, tracing out a curve.

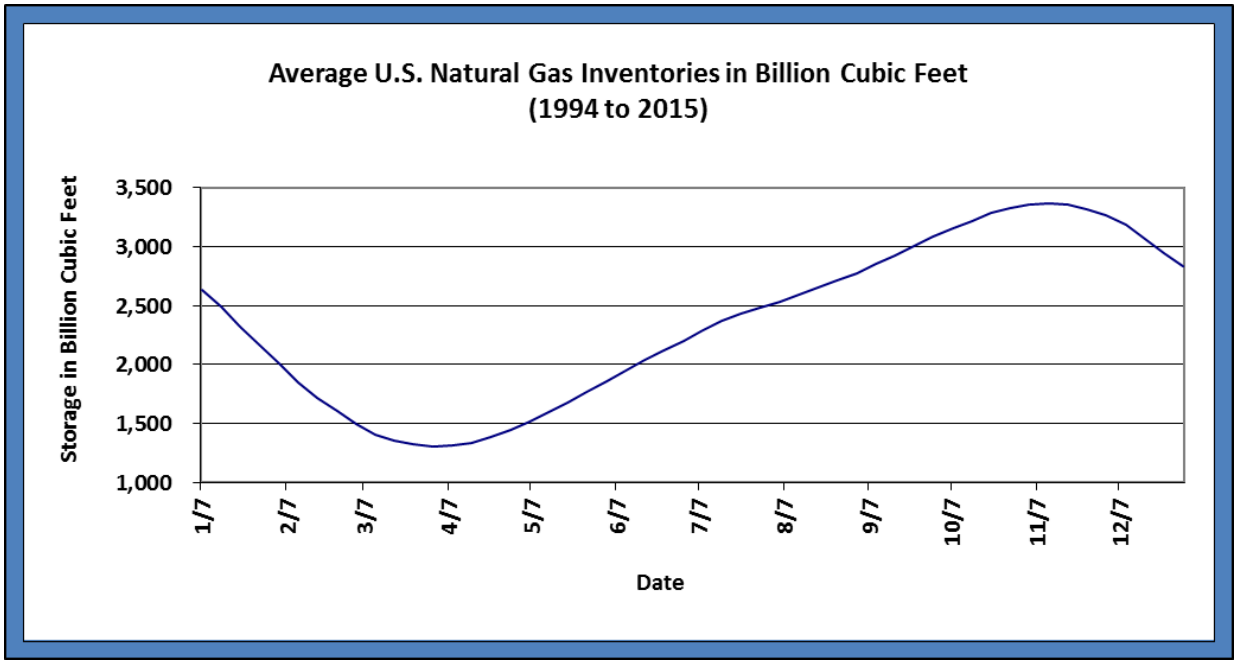
Figure 1



Source of Data: Bloomberg.

When the near-month futures contracts trade at a discount to further-delivery contracts, one terms the futures curve as being in *contango*. When the near-month futures contracts instead trade at a premium to further-delivery contracts, one terms the futures curve as being in *backwardation*. The yearly futures curves for natural gas in Figure 1 approximately mirror the average seasonal inventory build-and-draw pattern shown in Figure 2 on the next page. The prices of summer and fall futures contracts typically trade at a discount to the winter contracts. The markets thus provide a return for storing natural gas. An owner of a storage facility can buy summer natural gas and simultaneously sell winter natural gas via the futures markets. This difference will be the storage operator's return for storage. When the summer futures contract matures, the storage operator can take delivery of the physical natural gas, and inject this natural gas into storage. Later when the operator's winter futures contract matures, the operator can make delivery of the physical natural gas by drawing physical natural gas out of storage for this purpose. As long as the operator's financing and physical outlay costs are under the spread locked in through the futures market, this operation will be profitable.

Figure 2



Sources of Data: Bloomberg, U.S. Energy Information Administration.

Note: This graph specifically shows the U.S. Department of Energy's total estimated storage data for working natural gas inventories averaged over the period, 1994 to 2015.

Now to the extent that the hedging activity by storage operators causes trends in calendar spreads, a speculator can potentially have a profitable edge in taking the other side of these trades.

Cootner (1967) describes analogous price-pressure effects in the grain futures markets, keyed off the following factors: (1) peaks and troughs in visible grain supplies, (2) peaks and troughs in hedging positions from data provided by the Commodity Exchange Authority, a predecessor organization to the Commodity Futures Trading Commission (CFTC), and (3) fixed calendar dates that line up on average with factors (1) and/or (2). In practice, these effects can potentially be monetized through calendar spreads.

Trading Strategies Keyed to Commodity Index Rolls

Another example of calendar-spread trading arises from commodity-index roll dates. Unlike an equity index, one unique aspect of a commodity futures index is that its precise rules need to specify on what dates each of its contracts have to be rolled before the maturity of each contract. These rules are known as *roll rules*. The rules specify when a particular index constituent should be sold and a further-maturity contract should be bought. In advance of such a procedure, speculators in futures contracts such as in the wheat market have historically sold the front-month while buying the next-month contract, establishing what is known as a *bear-calendar spread*. They would then unwind this position during index roll dates, preferably profitably, but not always, as described in Collins (2007).

Conclusion

One typically finds that institutionally-scaled futures programs employ trend-following algorithms. Here, the key is employing such algorithms across numerous and diverse markets such that the overall portfolio volatility is dampened. On the other end of the spectrum are calendar-spread strategies. These strategies typically have limited scalability but individually can potentially have quite consistent returns.

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Ms. Till has presented her analysis of the commodity futures markets to the following institutions: the U.S. Commodity Futures Trading Commission, the International Energy Agency, and to the (then) U.K. Financial Services Authority. Most

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Additionally, Mr. Eagleeye has co-authored the following articles: "Implicit Options in Hedge Fund Products" (*Derivatives Week*), "Traditional Investment Versus Absolute Return Programmes" (*Quantitative Finance*), "Timing is Everything, Especially with a Commodity Index" (*Futures Magazine*), "Challenges in Commodity Risk Management" (*Commodities Now*), "Risk Management & Portfolio Construction in a Commodity Futures Programme" (*Commodities Now*), and "The Impact of Indexing in the Equity and Commodity Markets" (*EDHEC-Risk Institute Working Paper*).

Mr. Eagleeye has presented at the following industry conferences: *Financial News*' "The Next Generation of Commodity Investment: A Strategic Conference for Active Investors" (in London); the World Research Group's "Performance Attribution" conference (in New York City); the Chicago exchanges' "Annual Risk Management Conference" (in Huntington Beach, California); and at Terrapinn's "Commodities Week – MENA" conference (in Dubai).

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